

Appendix D

Appendix D shows a comparison of the amino acid sequences of the bifunctional LKR-SDH proteins from Arabidopsis, corn and soybean, SEQ ID NOs: 112, 122 and 121, respectively. Amino acids conserved among at least two plant sequences are indicated with an asterix (*) on the top row; dashes are used by the program to maximize the alignment of the sequences. The LKR and SDH domains (boxed sequences) were identified by Epelbaum et al. (Plant Mol. Biol. 35:735-748 (1997)) and Tang et al. (Plant Cell 9:1305-1316 (1997)).

SEQ ID NO:122 SLASVKQPAELPSYLRRACIAHAGRLTPLYEYIPRMRNTMIDLAPAK--TNPLPDKK-Y
SEQ ID NO:121 NLASATDITKLP AHLR RACIAHKGVL TSLYD YIPRM RSSDSEEVSENA-ENSLSNKR KYN

SEQ ID NO:112 ILVSLSGHLFDKFLINEALDMIEAAGGSFLAKCELGQSADAE SYSELEV GADDKRVL DQ
SEQ ID NO:122 TLVSLSGHLFDKFLINEALDI IETAGGSFHVLC EVG QSTDDMSY SELEV GADDTA TL DK
SEQ ID NO:121 ISVSLSGHLFDQFLINEALDI IEAAGGSFHVLC EVG QSTDDMSY SELEV GADDTA TL DK

SEQ ID NO:112 IIIDS LTR LANP NEDY I SPH REANK I S L KIG KV QQ -ENE I KEK P E M T K K S G V L I L G A G R V C
SEQ ID NO:122 IIIDS LTL SANE HGG DH A G Q E I E -L A L K I G KV NE Y E T D V T I D K G G K --I I I L G A G R V C
SEQ ID NO:121 IIISI SITA I AS PTE HD RFS N QDSS K I S I K L G K V E -E N G I E K E S D P R K K A V L I L G A G R V C

SEQ ID NO:112 RPAADF LAS VRT ISS Q QWY K TY FGD SEE KT DV H V I V A S LY L K D A K E T V E G I S D V E A V R L
SEQ ID NO:122 RPAAF LAS V P D I C T -----Y V G D D H A D Q I H V I V A S LY Q K D A E T V D G I E N T T A T Q L
SEQ ID NO:121 Q PAA EML SS F GRP SSS Q W Y K T L L E D D F E C Q T D V E V I V G S LY L K D A E Q T V E G I S P N V T G I Q L

SDH domain

SEQ ID NO:112 DVSDSE SLL K Y V S Q V D V V L S L L P A S C H A V V A K T C I E L K K H V T A S Y V D E T S N L H E K A K S
SEQ ID NO:122 D V A D I G S L S L D V S Q V E V V I S L L P A S F H A A I G V C I E L K K H M V T A S Y V D E S M S N L S Q O A K D
SEQ ID NO:121 D V M D R A N L C K Y I S Q V D V V I S L L P P S C H I I V A N A C I E L K K H V T A S Y V D S M S M L N D K A K D

SEQ ID NO:112 AGIT I L G E M G L D P G I D H M M A M K M I N D A H I K K G K V K S F T S Y C C G L P S P A A A N P L A Y K F S W
SEQ ID NO:122 A G V T I L C E M G L D P G I D H L M S M K M I D E A H A R K G K I K A F T S Y C C G L P S P A A A N P L A Y K F S W
SEQ ID NO:121 A G I T I L G E M G L D P G I G H M M A M K M I N Q A H V R R K G K I K S F T S Y C C G L P S P E A A N P L A Y K F S W

SEQ ID NO:112 NPAGAIRAGQNP A K Y K S N G D I I H V D G K N L Y D S A A R F R V P N L P A F A L E C F P N R D S L V Y G E H
SEQ ID NO:122 N P A G A L R S G K N P A V Y K F L G E T I H V D G H N L Y E S A K R L R L R E L P A F A L E H L E N R N R S L I Y G D L
SEQ ID NO:121 N P A G A I R A G R N P A T Y K W G G E T V H I D G D L Y D S A T R I R L R L P D L P A F A L E C L P N R N S L L Y G D L

SEQ ID NO:112 Y G I E S E A T T I F R G T L R Y E G F S M I M A T L S K L G F F D S E A N Q V L S T G K R I T F G A L L S N I L N K D
SEQ ID NO:122 Y G I S K E A S T I Y R A T X R Y E G F S E I M V T L S T K G F D A A N H F L L Q D T S R P T Y K G F L D E L L N N I
SEQ ID NO:121 Y G I -T E A S T I F R G T L R Y E G F S E I M G T L S R I S L F N N E A H S L M N G Q R P T F K K F L F E L L K V V

SEQ ID NO:112 ADNESE PLAG -----E E E I S K R I I K L G H S K E --T A A K A A K T I V F L G F N E E R E V P S L C K S V
SEQ ID NO:122 S T I N T D L D I E A S G G Y D D L I A R L L K L G C C K N K E I A V K T V K T I K F L G L H E E T Q I P K G C S S P
SEQ ID NO:121 G D N P D E L L I G -----E N D I M E Q I L I Q H G C K D Q R T A M E T A K T I I F L G L L D Q T E I P A S C K S A

SEQ ID NO:112 F D A T C Y L M E E K L A Y S G N E Q D M V L L H H E V E V E F L E S K R I E K H T A T L L E F G D I K N G Q T T A M
SEQ ID NO:122 F D V I C Q R M E Q R M A Y G H N E Q D M V L L H H E V E V E P D G Q P A E K H Q A T L L E F G K V E N G R S T T A M
SEQ ID NO:121 F D V A C F R M E E R L S Y T S T E K D M V L L H H E V E V E I Y P D S Q I T E K H R A T L L E F G K T L D E K T T A M

SEQ ID NO:112 A K T V G I P A A I G A L V L I E D K I K T R G V L R P L E A V Y L P A L D I L -----Q-----
SEQ ID NO:122 A L T V G I P A A I G A L L L K N K V Q T K G V I R P L Q P E I Y V P A L E I L E S S G I K L V E K V E T -. K F P D
SEQ ID NO:121 A L T V G I P A A V G A L L L T N K I Q T R G V L R P I E P E V Y N P A L D I I -----E-----

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SEQ ID NO:112 -----AY-----GIKLME-----KAE.-
SEQ ID NO:122 TQIKI-V.YSRAHVSFVLTPFWNI-YL.-TKM.QIKRTGGVYCKRRQRNLCIYDLSISNN
SEQ ID NO:121 -----AY-----GIKLIE-----KT-E-

SEQ ID NO:112 ---
SEQ ID NO:122 ADQ
SEQ ID NO:121 ---